

# इंटरनेट

# मानक

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IS 6893-7 (1990): Proforma for purchase specification for machine tools, Part 7: External cylindrical grinding machines with horizontal spindle [PGD 3: Machine Tools]



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“Knowledge is such a treasure which cannot be stolen”



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भारतीय मानक

मशीन औजारों की क्रय विशिष्टि का प्रपत्र

भाग 7 क्षैतिज तर्कु वाली बाहरी सतह की घिसाई की बेलनाकार मशीनें

*Indian Standard*

**PROFORMA FOR PURCHASE SPECIFICATION  
FOR MACHINE TOOLS**

**PART 7 EXTERNAL CYLINDRICAL GRINDING MACHINES  
WITH HORIZONTAL SPINDLE**

UDC 658.711.6 ( 083.22 ) : 621.924.56

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**BUREAU OF INDIAN STANDARDS**  
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NEW DELHI 110002

## FOREWORD

This Indian Standard ( Part 7 ) was adopted by the Bureau of Indian Standards on 3 July 1990, after the draft finalized by the Machine Tool Basics and Modular Units Sectional Committee had been approved by the Production Engineering Division Council.

The proforma for preparation of purchase specification for machine tools has been prepared to enable a prospective buyer to collect data from various manufacturers/suppliers for purposes of comparison. This is meant to be sent out with an enquiry by the purchaser so that the manufacturers/suppliers can fill in the data and send to the purchaser to make the comparison easier for the purchaser.

In the preparation of this standard, considerable assistance has been taken from the details supplied by the leading manufacturers and users of the product.

Other proforma for purchase specification in this series are given below:

IS 6893 ( Part 1 ) : 1988	Proforma for purchase specification for machine tools: Part 1 Sliding, surfacing and screw cutting lathes
IS 6893 ( Part 2 ) : 1987	Proforma for purchase specification for machine tools: Part 2 Horizontal/ universal kneetype milling machines ( <i>first revision</i> )
IS 6893 ( Part 3 ) : 1973	Proforma for purchase specification for machine tools: Part 3 Radial drilling machines
IS 6893 ( Part 4 ) : 1987	Proforma for purchase specification for machine tools: Part 4 Vertical boring and turning mills ( <i>first revision</i> )
IS 6893 ( Part 5 ) : 1987	Proforma for purchase specification for machine tools: Part 5 Vertical milling machines ( <i>first revision</i> )
IS 6893 ( Part 6 ) : 1985	Proforma for purchase specification for machine tools: Part 6 Bench/pillar type drilling machines

*Indian Standard***PROFORMA FOR PURCHASE SPECIFICATION  
FOR MACHINE TOOLS****PART 7 EXTERNAL CYLINDRICAL GRINDING MACHINES  
WITH HORIZONTAL SPINDLE****1 SCOPE**

This Indian Standard ( Part 7 ) lays down the proforma for purchase specification for external cylindrical grinding machines. It also gives essential information about the External Cylindrical Grinding Machines and their accessories which will enable the user to assess their usefulness and applicability.

**2 REFERENCES**

**2.1** The following Indian Standards are necessary adjuncts to this standard.

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
		2582 ( Part 1 ) : 1972	Dimensions for lathe spindle nose and face plates: Part 1 Spindle noses, camlock type, Type A ( <i>first revision</i> )
		2582 ( Part 2 ) : 1972	Dimensions for lathe spindle nose and face plates: Part 2 Spindle noses, camlock type, Type B ( <i>first revision</i> )
		2582 ( Part 3 ) : 1972	Dimensions for lathe spindle nose and face plates: Part 3 Spindle noses, bayonet type ( <i>first revision</i> )
5 : 1978	Colours for ready mixed paints and enamels ( <i>third revision</i> )	2996 : 1980	Mounting dimensions of plain grinding wheels by means of hub flanges ( <i>first revision</i> )
1231 : 1974	Dimensions of three-phase foot-mounted induction motors ( <i>third revision</i> )	4691 : 1985	Degrees of protection provided by enclosures for rotating electrical machinery ( <i>first revision</i> )
1715 : 1987	Dimension for self holding tapers ( <i>second revision</i> )	6362 : 1971	Designation of methods of cooling for rotating electrical machines
2161 : 1962	Coolant pumps for machine tools	12075 : 1987	Mechanical vibration of rotating electrical machines with shaft heights 56 mm and higher measurement evaluation and limits of vibration severity.
2324 ( Part 2 ) : 1985	Bonded abrasive grinding wheels: Part 2 Dimensions ( <i>second revision</i> )		
2368 ( Part 1 ) : 1979	Test chart for external cylindrical grinding machines with a movable table : Part 1 Grinding machines with centre to centre distance up to 1 600 mm ( <i>first revision</i> )		

## 3 PROFORMA

<i>Specification</i>	<i>Reference to Indian Standard</i>	<i>Unit</i>	<i>Actual Value</i>
(1)	(2)	(3)	(4)
<b>3.1 Capacity</b>			
3.1.1 Maximum diameter of work-piece that can be ground ( with guard )		mm	
3.1.2 Maximum grinding length		mm	
3.1.3 Distance between centres		mm	
3.1.4 Distance with extended tail-stock ( if applicable )		mm	
3.1.5 Maximum collet diameter		mm	
3.1.6 a) Maximum weight of work-piece that can be held between centres			
— With steady rest		kg	
— Without steady rest		kg	
b) Maximum weight of work-piece that can be held in chuck		kg	
<b>3.2 Table</b>			
3.2.1 Maximum/minimum travel		mm	
3.2.2 Maximum swivel on either side		degree	
3.2.3 Table travel per revolution of hand wheel:			
a) Slow		mm	
b) Fast		mm	
3.2.4 Infinitely variable speed		range/mm/min	
3.2.5 Dwell of table reversal		s	
<b>3.3 Work Head</b>			
3.3.1 Type of head-stock — Live spindle/Dead spindle			
3.3.2 Type and size of spindle nose	IS 2582 : 1972		
3.3.3 Type and size of internal taper in spindle	IS 1715 : 1987		
3.3.4 Spindle speeds No. and range		No./rpm range	
3.3.5 Swivel ( either side if applicable )		degree	
<b>3.4 Tailstock</b>			
3.4.1 Type: Manual/power operated			
3.4.2 Size of internal taper in quill	IS 1715 : 1987		
3.4.3 Quill travel: Manual/power operated ( whichever is applicable )		mm	

<i>Specification</i>	<i>Reference to Indian Standard</i>	<i>Unit</i>	<i>Actual Value</i>
(1)	(2)	(3)	(4)
<b>3.5 Wheel Head</b>			
3.5.1 Wheel head swivel ( if applicable )		degree	
3.5.2 Rapid approach, maximum/minimum		mm/mm	
3.5.3 Feed per revolution of hand-wheels on diameter, slow/fast		mm/mm	
3.5.4 Automatic in-feed at table reversal on diameter, range		mm	
3.5.5 Maximum hydraulic slow grinding feed on diameter		mm	
3.5.6 Rate of plunge feed infinitely variable		range mm/min	
<b>3.6 Wheel Spindle</b>			
3.6.1 Type : A/B	IS 2996 : 1980		
3.6.2 Size ( Diameter )	IS 2996 : 1980	mm	
3.6.3 Speed		rpm	
<b>3.7 Grinding Wheel</b>			
3.7.1 Size: OD × ID × width ( New )	IS 2324 : ( Part 2 ) 1985	mm × mm × mm	
3.7.2 Size: OD × ID × width ( worn out )		mm × mm × mm	
3.7.3 Wheel speed-peripheral: New as well as Worn out permissible		m/min	
<b>3.8 Internal Grinding Attachment ( if Applicable )</b>			
3.8.1 Grinding diameter, <i>Max/Min</i>		mm/mm	
3.8.2 Grinding length, <i>Max</i>		mm	
3.8.3 Type of spindle and speed ( in rpm )			
<b>3.9 Lubrication:</b> Type of lubrication ( Details to be specified )			
<b>3.10 Safety Provisions:</b> ( Details to be specified )			
<b>3.11 Electricals</b>			
3.11.1 Total power		kW	
3.11.2 Power supply		V, ph, Hz	
3.11.3 Motor(s)			
3.11.3.1 Main			
a) Type			
b) Frame size and mounting	IS 1231 : 1974		
c) Output(s)		kW	
d) Speed(s)		rev/min	
e) No. of phase			
f) Power factor			
g) Efficiency		%	
h) Rated voltage		V	
j) Frequency		Hz	



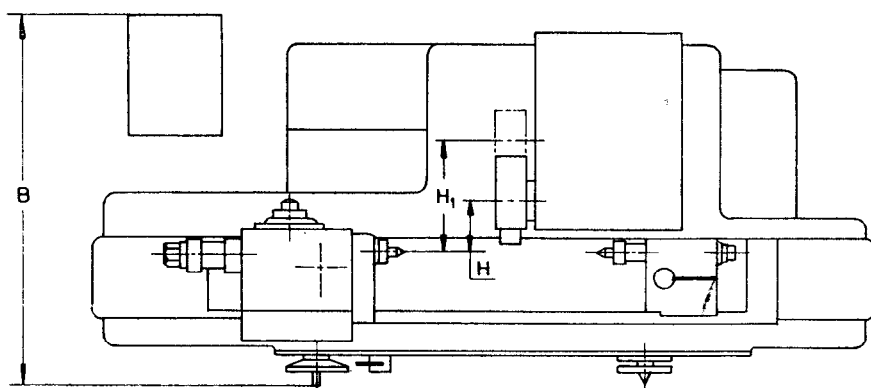
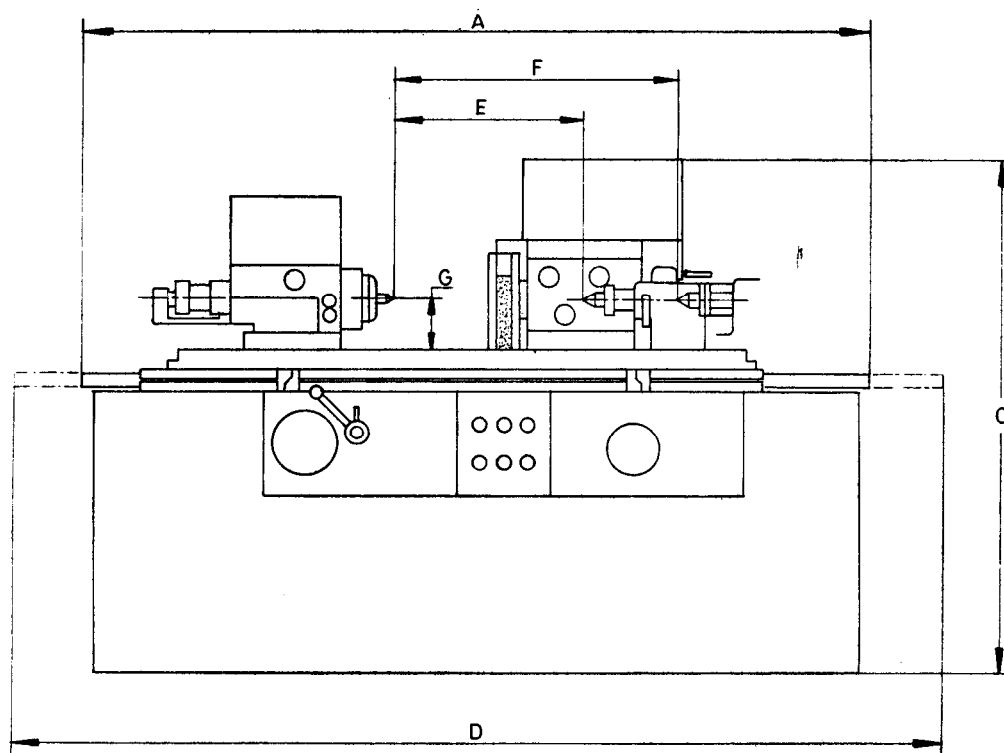
Specification	Reference to Indian Standard	Unit	Actual Value
(1)	(2)	(3)	(4)
k) Type of duty			
m) Class of insulation			
n) Ambient temperature		°C	
p) Type of protection	IS 4691 : 1985		
q) Type of cooling	IS 6362 : 1971		
r) Vibration limits	IS 12075 : 1987		
s) Any other features			
<b>3.11.3.2 Other motor(s)</b>			
a) Type			
b) Frame size and mounting	IS 1231 : 1974		
c) Output(s)		kW	
d) Speed(s)		rev/min	
e) No. of phase			
f) Power factor			
g) Efficiency		%	
h) Rated voltage		V	
j) Frequency		Hz	
k) Type of duty			
m) Class of insulation			
n) Ambient temperature		°C	
p) Type of protection	IS 4691 : 1985		
q) Type of cooling	IS 6362 : 1971		
r) Vibration limits	IS 12075 : 1987		
s) Any other features			
<b>3.12 Coolant Pump</b>	IS 2161 : 1962		
a) Output(s) of motor		kW	
b) Speed(s) of motor		rev/min	
c) Discharge of pump at maximum working height		l/min	
<b>3.13 Geometrical and Practical Test</b>	IS 2368 ( Part 1 ) : 1979		
<b>3.14 Colour</b>	IS 5 : 1978		
<b>3.15 Weight of Machine with Electrical and Standard Accessories</b>		kg	
<b>3.16 Standard Accessories</b>			
( Details of accessories — IS No. to be specified wherever applicable like centres, spanners, etc. )			
<b>3.17 Special Accessories</b>			
( Details of accessories — IS No. to be specified wherever applicable like chuck, diamond tool, carbide tipped half centre, dust collector etc. )			
<b>3.18 Floor Space Required ( length × width )</b>		mm × mm	

NOTE — While submitting quotations, the following information shall be furnished by manufacturers/suppliers, together with technical literature and capacity chart of the machine ( see Annex A for representative capacity chart for External Cylindrical Grinding Machine ).

- Hardness of bed guideways, and
- Any other special features.

# **ANNEX A** [ Clause 3 ( Note ) ]

## **REPRESENTATIVE CAPACITY CHART FOR EXTERNAL CYLINDRICAL GRINDING MACHINES**



- A — Overall length
  - B — Overall width
  - C — Overall height
  - D — Overall working length ( space )
  - E — Distance between centres
  - F — Distance between centres with extended tailstock ( if applicable )
  - G — Radial distance of work centre over table top surface
  - H — Minimum distance of wheel axis to work axis
  - H<sub>1</sub> — Maximum distance of wheel axis to work axis
- NOTE — Dimensions given shall consider all the standard accessories.

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